

MEETING MINUTES
The Former Memphis Depot
Restoration Advisory Board
October 21, 2004
South Memphis Senior Citizens Center
1620 Marjorie
Memphis, Tennessee

The Restoration Advisory Board (RAB) meeting was held at 6:00 p.m. on October 21, 2004 at the South Memphis Senior Citizens Center located at 1620 Marjorie, Memphis, Tennessee. The attendance list is attached.

WELCOME AND INTRODUCTIONS

MR. WILLIAMS: Good afternoon, everyone. My name is Mondell Williams. I'm the Co-chair for the Restoration Advisory Board, and I would just like to welcome everyone to the October Restoration Advisory Board meeting.

**REVIEW AND APPROVE OCTOBER AGENDA, REVIEW AND
APPROVE MARCH 2004 MEETING MINUTES:**

MR. WILLIAMS: And did everyone receive the minutes to the last meeting? And did you receive the minutes to the BRAC (Base Realignment and Closure) meeting? And did everyone have a chance to look over everything to see if it was in order or if there was anything that you found that was out of order? (Brief pause.) So if everyone has looked at it, I would like for someone to make a motion to approve the minutes for the last meeting and the agenda for tonight.

MS. PETERS: Mr. Chairman, I move that we accept the minutes with any necessary corrections and the agenda for tonight.

MR. WILLIAMS: Do I have a second?

MR. TYLER: Second.

MR. WILLIAMS: All in favor?

THE BOARD: Aye.

MR. WILLIAMS: All opposed? (Brief pause.)

MR. WILLIAMS: Any abstained? (Brief pause.)

MR. WILLIAMS: The minutes so moved.

OLD BUSINESS - COMMUNITY RAB HOUSEKEEPING ISSUES

MR. WILLIAMS: All right, we are going to go to the housekeeping. Anyone have anything on housekeeping tonight? Anyone want to talk about anything with the housekeeping of the facilities, Dunn Field, the Main Installation? Okay, if nothing else -- is there a question?

MS. SHORTER: Okay, is this restricted?

MR. WILLIAMS: Yes. The Public Comment Period is at the end of the meeting.

MS. SHORTER: Okay.

MR. WILLIAMS: Thank you.

NEW BUSINESS - ENVIRONMENTAL PROGRAM UPDATE

MR. WILLIAMS: By the way, Mr. Mike Dobbs is the facility Co-chair for the Restoration Advisory Board as well, and he will do his presentation: Environmental Program Update.

MR. DOBBS: Well, good evening. While he's setting up, let me say welcome, and it's good to be here. This will be my first time chairing or co-chairing a meeting, and I'm glad to see you all again. I also would like to take the time to go through some introductions of some people that we have with us. We have Tiki Whitfield from EPA (Environmental Protection Agency) back there. We

have our contractor, MACTEC Engineering and we have Tom Holmes, who is our Program Manager. We have Jesse Perez who works for the Air Force Center for Environmental Excellence who oversees our contract. We have Bruce Railey, who is with the Corp of Engineers that oversees the contract with CH2M Hill. We have Angela McMath, who is the DLA (Defense Logistics Agency) Program Manager for MACTEC.

As we're setting up here -- again, I'm sorry about this. We had a little problem here. We thought it was at 6:30, we had a little time. Sorry. A couple of months ago when we sat here and we try to pick up what was going on, we decided, just like the team here always did, that we only meet when we have information available. And several months ago we basically looked at our workload and we thought that a good time for the next RAB meeting would be October. And that's why we're here today.

Unfortunately, we have a lot of area included for tonight. We found some stuff we want to talk about when we're having an Early Removal Action. So, I'm grateful to have you all with us tonight, but we have a lot of information, and hopefully we can get you in and out of here. (Brief pause.)

MR. WILLIAMS: Go ahead, Mr. Tyler.

MR. TYLER: Stanley Tyler. When did you know you had this much information? Because this is a lot to consume for a working man. Has it been in a while?

MS. PETERS: It hasn't been ---

MR. TYLER: You know, sometimes it's hard to digest this much information this soon and I know you are under a time constraint. But we have citizens that do work and raise families, and they are concerned about the environment. And to try to compact all this and just hurry through it in one night --but to compact it and then just almost force feed you because of time doesn't seem fair to me.

Because I think when you have this much information, it should be broken down by segments so you can digest it and ask questions for us lay people who may not know all these scientific terms that we're about to be bombarded with. If I have it incorrect, please straighten me out.

MR. DOBBS: I hear you. What we'll do is we'll work with you and make sure and -- again, what we're trying to do here is we have an Early Removal Action. We just basically found out about the data a little -- I guess about a month now. We just rolled it in with this one because we have some delayed data. I'm sorry, and we'll try to do a better job. I don't have a good answer for you, sir.

MS. BRADSHAW: And I want -- give me that, Alma, if you don't mind. (Reaching for microphone.)

MR. DOBBS: Okay.

MS. BRADSHAW: Doris Bradshaw. I have been to a natural attenuation conference, and I understand this information. But I'm pretty sure that the people here -- you're exposing them to something that they haven't been subjected to. What I'm suggesting is if you've had this information for a month, and you're going to try to give us all this information. I think the first thing that you need to do before you give us this information is to have people to come in to explain what natural attenuation is and why ---

MS. PETERS: Is it too much?

MS. BRADSHAW: Yes, it is. But I understand the breakdown of the chemicals. And, so, I think that you should have brought someone in first, you know, to the one, two, three of what natural attenuation is, not just giving us what you're going to do on this site, but to explain what it is, what it does and why it's this important, why it's not important, what it can do, what it can't do. You're saying that you've had this information for a month. I don't feel like that I would be able to digest all this information tonight. And I think that I want to call the point of order to ask that the meeting change.

MS. PETERS: Well, tell me what you're going to tell me tonight, and then if you want to come back to another meeting, then let him set another meeting to come back.

MR. WILLIAMS: Excuse me. Excuse me.

MS. PETERS: But what have you got to offer tonight? I want to hear that.

MS. BRADSHAW: Excuse me. Excuse me. I was speaking first.

MR. WILLIAMS: Excuse me. Please recognize -- let the seat recognize you before you speak if anyway possible. Okay, go ahead, Ms. Bradshaw.

MS. BRADSHAW: I think that just like when you did the workshop on Risk Assessment, you brought in a professor. You explained to them what Risk Assessment was, how it could be done and what happened to the community, kind of like broken down to the community. I think that you need the same format as a teacher so that people can understand first before you start going -- I wish you would have sent me the information so I could have read over it so that I could intelligently ask questions. Because what you're going to do tonight -- I know there are some huge words in there. I have been exposed to it. I understand the process, whether I like it or not, but I know what it can do. And I know what it can't do, and, so, I would hate for you to kind of like run this down on people and people don't know what you're talking about.

MR. WILLIAMS: Could we possibly do this? Once he goes through his presentation, and if we feel that there is a great need of understanding of the material that was presented, if we could possibly maybe suggest that we have another meeting to suggest what has been discussed in this meeting, you know, if we need to, I would ---

MS. BRADSHAW: Mondell, we ask over and over again before we come to these meetings for them to send us the information out.

MR. WILLIAMS: True.

MS. BRADSHAW: And if he had got it a month -- I know two weeks after he got it he could have sent this information to us, and we could have read over this information. And I'm sorry, but it seems like we're running over and over in a wheel. We beg for information. We ask for information, and it seems like

that you don't hear us. And that goes for -- you know, you could have got with EPA or anybody, and y'all could have sent us out that information.

MR. WILLIAMS: It will be duly noted in the minutes, your feelings about the material that was sent, but when I asked if there were any changes or anything that should have been adjusted in the agenda, no one said anything. So, if possible, once we go through this material, and if there is any problem or a misunderstanding or we need to do an additional meeting to digest this or training, then maybe we need to discuss that during the RAB Comment Period, when our period comes.

MS. BRADSHAW: Mondell, the only thing that I see on here, I think that these initials need to be broken down. And if we raise our hand while they are speaking -- and say explain that, that you will stop and explain what you mean when you start calling out these letters.

MR. DOBBS: Certainly.

MS. BRADSHAW: And either, you know, do it at one time or come back -- something. I don't know if you've got a fact sheet in the back that's going to tell us what these alphabets mean or not, but we don't need you to keep going, you know, unless we can follow you.

MR. DOBBS: Just like Mondell said, though, let us -- we'll go through the presentation. If you feel that the RAB members need us to come back, bring some experts to explain it to you, we'll take that and we'll look at that and do that for you. And, Ms. Bradshaw, I thank you for your comment.

BASE REALIGNMENT AND CLOSURE CLEANUP TEAM UPDATE

MS. MOORE: Co-chair, would you move on down to the BCT update at this time until we get set-up?

MR. WILLIAMS: Okay.

MR. DOBBS: You want to just move down for now?

MR. WILLIAMS: Yes, yes.

MS. MOORE: Just ask the RAB if they ---

MR. WILLIAMS: I know we have voted on the agenda for the evening, but if we could alter it for a moment until they finish with the equipment, would that be all right with the board? (Brief pause.)

MR. WILLIAMS: Okay, okay.

MR. BALLARD: I'm Turpin Ballard with the Environmental Protection Agency, one of the members of the BRAC Cleanup Team (BCT). I guess I'm going to try to summarize the meeting, what we talked about at our meeting today when the BRAC Cleanup Team came together to talk about technical and project management details for the Depot.

The main topic of conversation is going to be the subject of the presentation tonight, and that is about how we are -- in response to some new data collected during the Remedial Design. We want to do an Early Implementation as part of the selected remedy for Dunn Field, specifically in response to groundwater contamination. And that, you know, was based on data that we just became aware of in July and felt we needed some additional study and jumped out real quickly. Within a month or two we had installed an additional 20 monitoring wells and -- well, let's say an additional 14 monitoring wells and have designed basically an Early Cleanup Action to treat groundwater in the area that we had previously thought would not need active treatment.

So that was pretty much the discussion for the first half of the meeting today and I'm not going to steal the thunder of the presenter by going into a great amount of detail. I would be certainly happy to take any questions that might come up as a result of the presentation.

And then the remainder of the meeting was basically updating other aspects of the program -- talking about scheduling, the various tasks, and reviews of upcoming documents. We're moving quite a ways down the road in the process, and all of the projects are into Remedial Design or into or through

Remedial Design. One of the presentations you'll get tonight is about the Remedial Design status, and that really is the summary of what we talked about. And rather than go into anymore detail on it, I would at this time, since we're ready to go with the presentation -- if anybody feels I have shorted you, I will be happy to come back to it later.

MR. WILLIAMS: Okay, we're going to go back to the agenda. Oh, okay, Mr. Tyler.

MR. TYLER: I have a question but ---

MR. WILLIAMS: Okay, I'm sorry, Mr. Tyler. Go ahead. Did you want to ---

MR. TYLER: No. I'll have it later.

MR. WILLIAMS: Okay. Sorry.

MR. TYLER: I don't want to hold anybody up.

MR. WILLIAMS: Okay.

NEW BUSINESS - ENVIRONMENTAL PROGRAM UPDATE

MR. DOBBS: Okay, again, Mike Dobbs here to give you an overview of what our accomplishments have been for the last couple of months--since last time we met. Basically, my presentation tonight is basically to talk about our accomplishments in the Remedial Design for the Main Installation, the Finding of Suitability to Transfer or the FOST, the Finding of Suitability to Transfer for FOST 3 on the Main Installation, the Dunn Field Record of Decision (ROD), FOST 4, which is over at Dunn Field, the Remedial Design for the Disposal Sites, then where we're going to be the upcoming year -- some of the projected workload.

The Main Installation: As a lot of you recall, the issue there is the groundwater contamination that we're still trying to address. We basically have completed the Remedial Design for that. If you recall the six-step process, that is the fifth step out of the six. The Remedial Design is a series of engineering documents and drawings and basically addresses how we're going to implement a remedy out there.

MR. DOBBS: Tonight after this meeting we're going to have a public briefing where an update – David Nelson from CH2M Hill is going to go more in depth about the Remedial Design for that process.

On the map here (Indicating) I wanted to again refresh your memory of the two areas there. Some points -- Airways is over here to the right. Again, we're going to have these two injection points with the enhanced bioremediation.

The Finding of Suitability to Transfer is termed as FOST. It's a BRAC term, and basically what it means is when the properties become determined they can be transferred over to the local reuse authority. Basically, FOST 3 is at the Main Installation, which consists of approximately 278 acres. This document is out. I think we received a public review in March of 2004. It was signed off in July 2004. And where we currently are is the Corps of Engineers -- Mobile Corps of Engineers district is working on the deeds where we can deed it properly from the government over to the local reuse authority. They're in that process of doing surveys as we speak. I think that's 120 days out or so, but to give you an idea.

I wanted to give a map here to show you that the property that's going to be transferred is this property again that's inside the blue line (Indicating). These are the two areas that are not because of groundwater contamination, but this would be the property that will be transferred over to the local reuse authority.

Dunn Field: Switching from the Main Installation to Dunn Field under the CERCLA (Comprehensive Environmental Response Compensation and Liability Act) process, we have the ROD signed for Dunn Field that basically addresses how we're going to remediate Dunn Field, which consists of

approximately 64 acres. It was completed in April of 2004 and signed off, and it's in the repositories for your review. That map is not showing.

MR. MORRISON: It's in the handout.

MR. DOBBS: It's in the handout? I'm sorry. It's basically a map of Dunn Field. We're having some computer problems. FOST 4 -- we explained FOST 3. Now we're starting to work on FOST 4. Basically, FOST 4 consists of approximately 41 acres at Dunn Field. That's basically where the remediation has already been completed and termed transferable. The documents currently have been reviewed by the Department of Army, and will go on to the regulators, EPA and TDEC (Tennessee Department of Environment and Conservation) within the next 30 days. Upon their review, then we'll be planning for the public review for the winter of 2005.

On this map here (Indicating) for a point of reference, you have Hays Road to the top, but this is the green area that is determined to be transferable over to the DRC (Depot Redevelopment Corporation) for reuse. This is where we had the pistol range remediation and the bauxite and everything else that has been removed.

Dunn Field: Back on Dunn Field --what is remaining on the other 20-some acres is we're working on the Disposal Sites Remedial Design. We completed that design in May of 2004, and, basically that is the fifth step in the six-step process. Basically, again, it tells you how we're going to implement this. We're going to give another follow-up after this meeting where David Nelson will go over more in depth on how that's going to be remedied.

I put this up here again (Indicating). I think you will see this slide again just to reiterate some of the points in the six-step process where we have the six steps in the CERCLA process. We have basically completed all of these processes and we're now basically in the Remedial Design. Then in the

upcoming six months or in the next year or two we're going into the Remedial Action.

MR. DOBBS: As stated previously, in the fall of this year we're going to be doing some Early Removal Implementation. We're going to have a little more detail on that over the next several presentations. It will probably be around January 2005. You're going to see the contractor out there doing the removal actions on Dunn Field.

In the summer of 2005 we'll be back out, and we'll be doing the implementation of the enhanced bioremediation on the Main Installation. Later on in the fall we'll be completing the designs for the permeable reactive barrier (PRB) on Dunn Field, and then, of course, the design to do ZVI (Zero Valent Iron) and the soil vapor extraction on Dunn Field as well. So, those designs will be done in the fall of 2005, and then following the spring of 2006 we will implement those two remedies.

I wanted to give you a map to give you a little idea where we are. Again, Dunn Field, basically right now the projections are the PRB out to this area and then some of the ZVI injections in that area (Indicating).

Over the last several months there have been a lot of strides. We've made a lot of progress forward and I will take any questions you have at this time.

MR. WILLIAMS: Yes, well, I would like to start us off just to get the ball rolling here. The first one -- I've got about two or three, but I'm going to try to narrow them down. The first one is: Did they ever find out the flow of the contamination? They said that it was coming -- this is on the Main Installation I think or it might have been on Dunn Field. I'm still trying to grasp, you know, where it was at. But my thinking is did they ever find out where the main source of the contamination was coming from? They said that it was not on this site, but it was flowing through this site at one point or another.

MR. DOBBS: You're talking the Main Installation or are you talking -- I think you're referring to Dunn Field.

MR. WILLIAMS: Was it Dunn Field?

MR. DOBBS: It was Dunn Field.

MR. BALLARD: There is an element of the groundwater contamination that is flowing across the northern edge of Dunn Field from a source that's off the Depot, but the primary source of contamination is from Dunn Field.

MR. WILLIAMS: Okay, and one more and then I will turn it over to someone else. You were saying that the Army holds the master lease to the property. And I think the Army still holds it or it's supposed to have been for five years I think.

MR. DOBBS: Well, let me go over something. When we say "property," DLA does not ever own property. The property here in Memphis is owned by the Department of Army. DLA does not -- DLA always operated under a permit by the department to operate that property.

Okay, so, the actual land holder at this time is the Department of Army. DLA is here to basically -- again, we had an operation here, and then there were installation restoration programs to clean up the environment, and then work with DLA in accordance with the reuse plan. All of the deeds and all the real estate transactions get signed off by Army.

MR. WILLIAMS: So, have they done their inspection at the end of the five years? At the end of five years they were supposed to come out and did an inspection of the property before they got ready to turn it over to the city and county.

MR. DOBBS: I don't know what you're referring to of "five years." I don't know if you're referring to ---

MR. WILLIAMS: I'll let Mr. Jim Covington -- I think -- do you know anything about what I'm talking about?

MR. COVINGTON: Jim Covington. We were operating under a FOSL -- it's a Finding of Suitability to Lease. And under a master lease, as you've referred to. And we've been doing that for several years. It was a renewable five-year lease, and we've gone through the renewal process and converted it to a lease in

furtherance of conveyance, which is a little bit more than long-term lease. And, so, tonight I noticed the Finding of Suitability to Transfer. That's the next step for us to get ownership of the property. And with both of those -- the Finding of Suitability to Lease and to Transfer -- there was a review of the buildings and the property that came to the conclusion that we could use it for leasing. Now we can use it -- we can own it.

MR. WILLIAMS: Okay, now I'm ready to recognize the RAB. Ms. Bradshaw.

MS. BRADSHAW: Doris Bradshaw. I have several questions. On the third -- fourth sheet up there, you can't see any -- you can't see any of this on Main Installation groundwater treatment area.

MR. DOBBS: This map here?

MS. BRADSHAW: Yes. I would like for you to, you know, make that clearer so we can read it and just send it out to us. I want the opportunity to go through it, you know.

MR. DOBBS: Are you asking for it bigger so you can see the legend on the side, the side legend?

MS. BRADSHAW: Yes, yes.

MR. DOBBS: Okay.

MS. BRADSHAW: I want to be able to see everything that's on there. Because it's just like I feel as though you ran through this real quick. And going through this, you're talking about transferring the land now to the city on the Main Installation, sections of it.

MR. DOBBS: Yes.

MS. BRADSHAW: And that's land that's suitable for transfer?

MR. DOBBS: Yes.

MS. BRADSHAW: Okay, and that's one thing that you're doing. And I think that we could talk about that a little bit more, what land and how much. I know you said that it's the groundwater areas that's keeping you from transferring it. But actually, on the Main Installation there actually has been a full cleanup, and I want that in the record. Because judging from what we did at the beginning or looking at the beginning, and now all of the sudden this land is clean and suitable for transfer, and I have some problems with that.

Okay, on Dunn Field you're talking about land that's in the green area that you're talking about transferring on Dunn Field.

MR. DOBBS: Yes, ma'am.

MS. BRADSHAW: You know, either y'all think we're crazy -- Dunn Field ain't fit to transfer nothing. And you moved the fence line. I don't know when the test was taken up and down that site, how many was taken, and that's my question. How many tests was taken down that fence line to move that fence line, regardless of what was going to be there?

The other issue, the ZVI injection, you're going to have to come a little clearer with that and spell out what it is, what the injection is, what you're going to inject in there. You're going to have to be a little bit more clearer than just having ---

MR. BALLARD: That's the subject of the next presentation.

MS. BRADSHAW: Oh, okay.

MR. BALLARD: You know Mr. Nelson with CH2M Hill is going to be summarizing the results of the Treatability Study that we did to show the treatment abilities of zero-valent iron and follow that with a presentation on how we're planning to use this treatment technology in an area of the plume that we feel needs early action.

MS. BRADSHAW: Okay, well, I'll save my question there. Because I'm wondering where has this work -- and when he gets ready to present this, I want to know where it worked, where it has been successful, and why did you choose Memphis to do this? Because this is an issue. I have some strong reservations about natural attenuation. It's a do-nothing remedy, and the community people told EPA it was a do-nothing remedy. Natural attenuation, that means let nature take care of it, and that's what this means.

And these words, these fuzzy words that people sometimes don't understand, make you think that it's something that's good that's going to happen. And

this site may not be cleaned up for another -- shoot, some of those chemicals have a shelf life of thousands of years.

So, I'm just saying those are questions that I want to understand. And if you could, go back to the Dunn Field section and tell me how many samples was taken down the section that you was doing -- and what did you sample for? Which section that you're getting ready to transfer, and to transfer it to who?

MR. BALLARD: Ms. Bradshaw, I don't think we're able at this meeting to give you that information.

MS. BRADSHAW: But if you're not able to do it at this meeting, get the information to me, please. I want to know what you transfer -- what you sampled for and what was -- you know, how did you come about saying that this is clean. If it was only lead there, it was only that. And I want to know what you sampled for and why you didn't sample for anything else. Because I have been preaching for years that it needs to be broad spectrum testing, and if it's not broad spectrum testing, then you haven't done your work.

MR. WILLIAMS: Ms. Peters.

MS. PETERS: Johnnie Mae Peters -- and what I have to say is similar, too, about Dunn Field. Because I read the paper today about how they were going to mix some chemical with some water and put it in there. And what I want to know is any of this solution having to go in Dunn Field to make it usable? So that's a part of my question, what I read in the paper today about it. Because I wonder, if you're going to mix something together, what kind of chemical are you mixing together? If you pour it down in this hole where they've been dumping there since back in 1942 -- and there was already a deep hole all these years, got stuff in it and some of them other chemicals. Who has proven that this whatever you're going to pour down there don't mix with what's already down there? Something -- you know --you understand what I'm asking?

Since I read in the paper, and I want to understand about when you're going to mix something, pour it in something -- just like I go get some ammonia and Clorox, you make another gas. Because it will knock you out. So I'm trying to find out. I'm just saying in my words so you know what I want to know. I want to know when you mix this up, will it affect the air, you know, or it's just going to stay, something keep going down, down, down, really get into the water. Because you already got some bad wells in this area, in the Depot area. Thank you.

MR. WILLIAMS: Mr. Tyler.

MR. TYLER: Stanley Tyler. On Page 3 of your Finding of Suitability to Transfer, on the Main Installation you have a little square. You said that's bad groundwater. Page 3, yeah, right there to the right (Indicating). What does that mean?

MR. DOBBS: This map goes in conjunction with the other one where basically when we go out -- and we're going to hear a little bit later this evening the Remedial Design for the Main Installation for groundwater. We have two injection points, one to the left and one to the right, and we're going to inject the lactate injection.

MR. TYLER: My question is why? I thought that was suitable to transfer.

MR. BALLARD: It's not.

MR. DOBBS: It's not. The red is not. This portion here is not; inside the blue is. The red is not transferable until we remediate that site, the groundwater.

MR. TYLER: Okay.

MR. WILLIAMS: Mr. Myers.

MR. MYERS: Page 6 of your presentation, your CERCLA -- Torrence Myers. Your six steps in the CERCLA process, is this always a forward process or do you ever stop and go backwards? Mainly, it seems like your Remedial Investigation and Feasibility Study that you base your Record of Decision is faulty. So, do you redo your Record of Decision or you just keep going forward?

MR. BALLARD: Since I'm the EPA rep, I'll answer that, Mr. Myers. It's not unknown to go back and rework a Remedial Investigation. But it's not necessary, typically,

because if we're given -- after a Record of Decision is signed, we typically have a period in which we continue to collect information to support the Remedial Design. If that information indicates that a change to the remedy of some type is necessary, then we have the flexibility to make that change. And depending on whether it's a minor, a significant or a fundamental change, we can completely amend the ROD or just publish what's called an Explanation of Significant Differences, all of which are available for public review. In some cases, in the case of an amendment to the ROD, a Public Comment.

So, although -- and typically what we are trying to collect during the Remedial Investigation and Feasibility Study is sufficient information to try and understand the extent of contamination and the type of contamination that we have, and the risks it presents and then select a remedy. That's not -- we don't always have enough information. We frequently don't have enough information to design a remedy. And that's why we continue to collect data to support the design. Sometimes that leads us to circle back and take another look at the remedy. I hope that answers your question or does it?

MR. MYERS: I'll accept that.

MR. WILLIAMS: Okay, Mr. Ballard, did you want to do yours?

MR. BALLARD: Yes. I just wanted to say that -- and certainly in response to a comment made earlier by Ms. Bradshaw and I think by Ms. Peters is that Councilwoman Janet Hooks back at the March meeting asked specifically to be sent information about zero-valent iron -- where it's been used, how successful it's been, how long it has been used and any other information. I was able to provide about it and I pulled together a bunch of information about zero-valent iron in response to her request and sent it to her and copied all the RAB members on it.

MR. WILLIAMS: I received it.

MR. BALLARD: And it apparently satisfied at least her request because we didn't hear any response from her one way or the other.

MR. WILLIAMS: Okay.

MR. BALLARD: So, if anyone did not receive -- it was on a CD, a compact disk, and I would be happy to send another copy. Because it's got fact sheets that were created for the public at large to understand. And it also has technical documents and site specific examples of where it's been used.

MR. WILLIAMS: All right, are there anymore questions? If not, we'll move along with the agenda.

MR. DOBBS: I just want to say something. I want to thank everyone, and I want to apologize for the little technical difficulty we had here this evening. But I wanted to take a moment to say, Ms. Bradshaw, thank you for your questions, and, Mr. Williams, thank you, and, Mr. Myers and Mr. Tyler and Ms. Peters --thank you for your questions, and we'll get you a response to them. Thank you.

MR. WILLIAMS: Okay. I want everyone to understand that the reason that the RAB members ask questions is not to antagonize the presenter but to get more clear on what information that's being put out there that we can receive a lot better. So, we will go ahead with the agenda.

MR. COVINGTON: This handout, will somebody explain?

MS. MOORE: That's on the zero-valent iron.

MR. COVINGTON: Is this the same handout that was sent to Ms. Hooks?

MR. BALLARD: That may be one of them, but I have a whole lot more on that disk.

MR. WILLIAMS: While he's looking for that, was everyone sort of satisfied with the answer that was given on the presentation to assure that we either do or do not need to further get more understanding of this? Questions? Okay, Mr. Covington.

MR. COVINGTON: Jim Covington. I heard the question about -- Ms. Bradshaw, what did you call it when you don't do anything?

MS. BRADSHAW: Natural attenuation.

MR. COVINGTON: Natural attenuation. And I guess my question is -- is this zero-valent iron natural attenuation?

MR. BALLARD: No, it's not.

MR. COVINGTON: What's the difference?

MR. BALLARD: Natural attenuation -- monitored natural attenuation is an accepted remedy for -- under certain conditions where natural conditions within the groundwater are capable of dealing with varied concentrations of certain contaminants, primarily volatile organic compounds (VOCS), including the kind of compounds that we have here at the Depot. However, we have a range of concentrations in groundwater of these volatile compounds that go from non-detect or very low to extremely high. And we don't want to do nothing about extremely high concentrations of volatile compounds.

So, monitored natural attenuation is frequently used as a -- if you want to call it a polishing step where a treatment process, an active treatment process, reduces your concentrations from high to low and then natural processes within the aquifer, which include dilution, dispersion as groundwater migration occurs and biological action, can break down or otherwise reduce the concentrations to drinking water quality.

So, that's monitored natural attenuation, but the zero-valent iron is an active treatment process where we -- well, as David is going to present, we inject powdered iron into the groundwater, and it creates conditions that break down these volatile compounds to very low concentrations.

Rather than get into more explanation of that, I would like to let David do his presentation and maybe -- well, just let him do his presentation. But I just want to say that the presentations tonight about these treatment technologies are not about natural attenuation. It's active treatment.

NEW BUSINESS - ZERO-VALENT IRON TREATABILITY STUDY COMPLETION AND RESULTS

MR. NELSON: My name is David Nelson. I work with CH2M Hill. I'm the Project Manager for the Memphis Depot project through the Huntsville Corps of

Engineers. The presentation I'm going to go through now is our Groundwater Treatability Study, which was conducted for 2003 and 2004.

As you are aware, the Dunn Field Record of Decision was signed in April 2004, and it includes several groundwater remedies within that document, including a source area remedy, which is our zero-valent iron injection, and downgradient remedies, including the permeable reactive barrier or PRB, as well as monitored natural attenuation or MNA.

MR. NELSON: The Treatability Study that we're going to discuss was conducted to evaluate the source area remedy, in other words, the ZVI injection. The pilot test was conducted on Dunn Field from October 29, 2003 to April 27, 2004.

In your handout there is a map. It's a little fuzzy up here. This is Dunn Field (Indicating). The Treatability Study area was on the western portion, central -- west central portion of Dunn Field. This little inset here (Indicating) is a blowup of the Treatability Study site. The blue dots are injection points. We had several monitoring wells. We had two that were existing that we used: MW (monitoring well) 73 and MW74. This line -- here is our western perimeter of Dunn Field.

There are several monitoring wells, like I said, that were used as confirmation purposes for the Treatability Study. MW131, 132, 133, 134 and 135 are new wells we installed for the Treatability Study.

The ZVI technology has been used to treat groundwater contaminated with chlorinated solvents since early 1990's, I would say. It's a relatively new technology because there have been other groundwater technologies that have been around for a lot longer, but this is a fairly new technology. And what ZVI is, zero-valent iron that once introduced into groundwater, it slowly oxidizes and produces hydrogen and ferrous iron, which reacts with

concentrations of chlorinated volatile organic compounds, or CVOCs. It produces these compounds to innocuous products, and innocuous means, basically, non-harmful or non-reactive -- it basically breaks it all the way down to the most elemental compound.

MR. NELSON: The vendor that we selected to conduct the field operations for this treatability is ARS Technologies of New Jersey. ARS is a leading environmental contractor in zero-valent iron injections, and they hold a patent in pneumatic fracturing technology.

ARS performed injection of bore holes through the use of a drill rig, and they injected the zero-valent iron using compressed nitrogen as well as a batch mixing process which involves potable water mixed with the iron.

Up here (Indicating) the little view of the powdered iron, you can see it is very fine -- fine grain material, but it's just pure iron. That's all that's injected. This schematic is a drawing of -- gives you an idea of the process.

There's a trailer that comes out and usually contains the compressed nitrogen. What's not general here is a batch mixer. You know, a batch mixer, all it is is a big tub that has some pumps around it, and they bring in potable water and put it into the tub. The compressed nitrogen and the zero-valent iron mixed with water travels down through a bore hole drilled into the study area and through a pneumatic packer that's in them. The pneumatic packers are inflated with air, and they seal off the bore hole and the zero-valent iron travels down the bore hole and out into the formation through fractures that are created when the compressed nitrogen is released into the formation.

There is also some depiction of monitoring wells here. The monitoring wells -- what they're used for is to detect pressure changes within the aquifer as well as the influence of the zero-valent iron into the water.

So, the objectives of this Treatability Study were to determine the effectiveness of zero-valent iron to treat the CVOCs in the groundwater. We also wanted to determine the amount of ZVI needed to treat the CVOCs in the affected areas of Dunn Field effectively. And through this Treatability Study we also defined an approximate radius of influence of the ZVI injection would raise the influence to break through the treatment barrier that each injection bore hole created. And we can also access the most effective drilling and injection methods to achieve the best results for the full scale design -- full scale remedy.

MR. NELSON: The Treatability Study area targeted an area with the highest concentration of CVOCs in the shallow aquifer. The groundwater in this case is approximately 7 to 90 feet below ground surface. As I said earlier, we installed five new wells. There were a total of seven involved in the Treatability Study, and we also drilled and completed four injection bore holes.

We also did some site preparation as part of the preliminary stage of the Treatability Study. We laid down a geomembrane layer and some gravel on the western portion of Dunn Field in the study area just to stabilize the surface. If you're ever around Memphis when it rains, especially on the soil, it gets pretty slippery.

We mobilized a drill rig and the ZVI batch mixing trailer and compressed -- it says compressed air, and there is compressed nitrogen. This was all brought on the site. We established our site safety areas, in other words, safety zones within the study area that only certain personnel were allowed to enter. And we also had some hydro geologic testing, which is basically a sludge test, in each of the monitoring wells before and after the injection.

MR. NELSON: The ZVI injection process involves compressed nitrogen injection which creates the fractures in the soil, and they act as pathways for the ZVI. This is followed by a ZVI water slurry injection. It's potable water being flushed into the aquifer along with the ZVI. Clean water and nitrogen is again used to clean the system out after each injection, and each injection is every two to two and a half foot intervals within the saturated zone of the aquifer. We inject approximately 25,000 pounds of iron into the four bore holes in the study area. We also conducted some confirmation soil borings to create field observations about the ZVI distribution throughout the study area, and we found that, as expected, the ZVI is particularly concentrated along the soil fractures created from the nitrogen that's released.

We also conducted, as part of the study, some groundwater monitoring. We conducted a baseline event in October of 2003, and we conducted four post injection sampling events to confirm the performance of the ZVI in the aquifer, and this also allowed us to access our CVOC reduction rates.

This pretty picture basically tells us -- these are developed as a result of our groundwater samples. (Indicating) This bar to the left shows various colors. The highest concentration is a reddish orange color, and the lowest concentrations are down here. It's a bluish color. This represents about 100 micrograms per liter or 100 parts per billion of CVOCs, and the red up here is about 100,000 parts per billion of the CVOCs.

Now, this first map up here is the baseline event. You can see that we had some fairly high concentrations on MW73 and MW135. Essentially, the entire area had some elevated concentrations of CVOCs before the zero-valent iron was injected.

You can see immediately after the injection the area, especially around MW73, has turned a blue color. So, what it's representing is that we reduced

the concentration of CVOCs significantly from just immediately after the injection of zero-valent iron. If you look through the rest of these, you can also see the blue or low concentrations per system throughout time and over, what is that, a ten-month period of our study. (Indicating)

MR. NELSON: I do want to point out that in MW73 you can see the concentration started to increase. So you see the color starts to change back towards the higher concentration, but that's because we injected into the center of a plume, and, so, everything that was upgradient, which is over to the right here, was fluxing or flowing into our study area and would change the concentration accordingly. Zero-valent iron doesn't last forever. It reacts, it breaks down, and you do get, you know, slight increases, especially when you're injecting into the middle of the plume.

So, to summarize the results of this study, our average decrease of CVOC concentration was in the area of 95 percent. We did not accumulate any undesirable byproduct, such as vinyl chloride or dichloroethene. We had minimal hydro geologic impact, which means that we didn't change the aquifer and the groundwater was able to flow naturally as it has been doing before the zero-valent iron was injected.

A radius that was injected with zero-valent iron-- we determined from the confirmed soil sample was 25 feet. However, we have an outward zone of influence of 40 feet which was measured from an injection bore hole out to MW131, our furthest out monitoring well, and it was upgradient as well. And we have determined from the study that approximately 7 to 800 tons of zero-valent iron would be required for a full scale remedy, and that concludes this portion of the presentation.

MR. WILLIAMS: Well, I think this is -- I sort of agree with Ms. Bradshaw here on this. This was a bit much to digest when you're really not that too familiar with it. And my question is during different seasons the water level is at different points,

you know, like in the summer it's lower than it is in the winter. And my question is: Was the contamination more? In what season? And did the contamination sometimes have a tendency to move? And I was wondering did it move any or -- not disappear, but move downstream?

MR. NELSON: Well, okay, to answer one part of your question ---

MR. WILLIAMS: The levels.

MR. NELSON: When the water levels rise the way that we anticipated or to counterbalance that affect was to inject -- let's say you have that much aquifer normally, and if you have an increase, we injected a little bit above the top of the water table to counterbalance any increase of I guess growth of our aquifer. In other words, if you have more water and thicker, we would still have iron above it to allow us to counterbalance any flow over our study area.

MR. WILLIAMS: Okay.

MR. NELSON: So that answers one part of your question. The other one was did we move any of the contamination. We did see -- let me go back to this one slide. MW74 down here (indicating) was our furthest downgradient that's -- well in the study area. And we injected here (Indicating) and took our first post injection sample out of MW74 and the others. We saw a slight increase in the CVOC concentrations in MW74. We surmised that the injection of compressed nitrogen and the iron and the water probably pushed a little bit of contamination downgradient. It wasn't a large increase, but it did increase and was beyond the normal -- how should I say, normal -- normal flux, the normal increase that we would typically see.

MR. WILLIAMS: Ms. Bradshaw.

MS. BRADSHAW: My question is: I hear you talking, but you said that you have already injected into Dunn Field already. So you're just telling us that this is what you're going to do, but from my understanding, you have already started.

MR. NELSON: Well, we just injected in the study area only at this time.

MR. BALLARD: Ms. Bradshaw, I think I know -- I think I understand what you're saying.

MS. BRADSHAW: He has already started.

MR. BALLARD: As part of the Remedial Design to get the parameters we need to ramp up to full scale cleanup, it's common to do a Treatability Study, and that's what this represents, these four injection points represent. That's not what he's going to be talking about in the next presentation about Early Implementation.

MS. BRADSHAW: Well, from what he was telling us, he has already injected this stuff, this iron already into the aquifer; right?

MR. BALLARD: Yes.

MS. BRADSHAW: Okay, that's what I'm getting at. Without us even knowing that this had happened.

MR. BALLARD: You were briefed on this at the October RAB last year that this was imminent, that this was about to happen.

MS. BRADSHAW: That you was coming to ---

MR. BALLARD: That we were going to do this study. It was briefed at the October RAB last year.

MS. BRADSHAW: That's -- I just wanted you to be clear on that you have already started doing this.

MR. BALLARD: We have already done this as part of ---

MS. BRADSHAW: Even though this is a study, so-called study, but this is something that you have already done in our community.

MR. BALLARD: Yes.

MS. BRADSHAW: Okay.

MR. WILLIAMS: Go ahead. I'm sorry.

MS. BRADSHAW: Now, my question is: I see right here you talk about that this particular iron, it affects the chlorine solvents. Is that what it does?

MR. NELSON: Well ---

MS. BRADSHAW: Well, it seems like that that's what it was specifying, the chlorine solubles.

MR. NELSON: Let's see. Most of the contaminants or all of the contaminants on Dunn Field groundwater are chlorinated volatile organic compounds.

MS. BRADSHAW: Not all of them, because there's some gamma down there, some cobalt down there, and I can name a whole bunch of other things that's in that water, now. But I want specifically to know what this iron does to what and how it breaks

it down. That's where I have a question, is how does it break it down. I want to understand the science in it.

MR. BALLARD: I can refer you to the information we sent you.

MS. BRADSHAW: Okay.

MR. BALLARD: I think you should take a look at that because it's pretty comprehensive in explaining how zero-valent iron works and where it's been used and its rate of success and the types of contaminants that it can be applied to.

MS. BRADSHAW: I see you have one colleague of mine that sent a letter from Mountain View, but I still want to -- you know, from this here, this fact sheet that was given to us.

MR. BALLARD: I was talking about the CD that I sent to the RAB members.

MS. BRADSHAW: Well ---

MR. BALLARD: If you didn't receive it, I'll send you another one.

MS. BRADSHAW: Just send another one. I think I received it but I ---

MR. BALLARD: You probably get so many that you just ---

MS. BRADSHAW: I get a lot of CDs.

MR. BALLARD: All right, well, I'll send it to you.

MS. BRADSHAW: And I don't get a chance to look at them, but if you specify what it is, then I will look through it, and maybe this will help my ignorance.

MR. BALLARD: And I wish that if you do have questions after you look at it, please give me a call, and I will be happy to explain what I can or put you in touch with our folks at our current research lab.

MS. BRADSHAW: It's just I would like to -- I still have these questions. When it breaks this chemical down, what does it turn into? And from what I heard, it's supposed to pull chemicals up or does it stay in the water or does it run off? You know, it's just a lot of questions that I have in the back of my mind that I want answered.

MR. BALLARD: I understand.

MS. BRADSHAW: And I just wish that someone had explained the technology within itself first, you know, the ABCs first.

MR. BALLARD: We went through an entire briefing -- a briefing about the Feasibility Study and Public Comment Period -- and a presentation during the Public Comment Period, which I know that you don't like those kinds of presentations but ---

MS. BRADSHAW: It still don't answer our question. We ask questions and they don't get answered. So, what I'm saying is that I think that if we could go in a little bit more depth into what this is. I want to know, you know, is it going to be any effects in our community? You're talking about people that live within 15 feet of that site. And I'm not so worried about your technology. I want to know if there's any off gases or what is happening there, and these are my questions.

And the other chemicals -- you know, chemicals react. You said you put iron in there. I don't know if iron is going to have a reaction with something else or not. Because, it's more than VOCs over there. It's more than VOCs in that water, and chemicals do react and counter-react. And, so, those are my questions, but I will call my colleague and ask him what type of information that he can give me off of Mountain View and some of the rest of the people that's dealing with this type of procedure.

I still want to know exactly how it works, where it worked and how satisfied was the community with it.

MR. BALLARD: I'm not sure if the information that I sent out will answer how satisfied was the community, but where it worked and how it worked should be in that information that I did send out.

MS. BRADSHAW: Because if it worked like what he showed me on the board -- but EPA always puts something on the board and make it seem so simple and that it's really good. And then sometimes it's a catastrophe when you go talking to the community people. So, I'm not being hard on you. I'm saying that we need more information. We're seeking more information because we are --

some people are less than 15 feet from that site, and then the issue about the water not moving, you know, I beg to differ.

MR. BALLARD: Oh, no, I don't think he said "not moving."

MS. BRADSHAW: No. He was talking about the contaminants in a certain place, like they are just sitting there. And as far as the maps, like, for instance, even your maps -- the way you've got them cut off, it make it look like that, "Oh, here is a plume, here is a plume and it's not moving." But water moves underground.

MR. BALLARD: What a plume map can only show you is a snapshot in time.

MS. BRADSHAW: Of that particular ---

MR. BALLARD: Of that plume based on that data that was taken at that time.

MS. BRADSHAW: Uh-huh.

MR. BALLARD: Groundwater does move.

MS. BRADSHAW: Right.

MR. BALLARD: Contaminants dissolved in groundwater move with the groundwater.

MS. BRADSHAW: Right.

MR. BALLARD: But groundwater even here at Dunn Field, the rate of flow changes from -- you know, depending on where you are in the aquifer.

MS. BRADSHAW: Yeah, because I beg to differ on that.

MR. BALLARD: It may go faster; it may go slower.

MS. BRADSHAW: Yeah, that's right. So, I would like that explanation. You did break it down that it does move. Because for years they were saying well, it doesn't -- it's only 50 yards or 60 yards, but that plume travels with the water, especially under the Main Installation. It's like a waterfall up under there the way it's moving. Because Cane Creek runs constantly, and Cane Creek is part of that aquifer. That's okay.

MR. BALLARD: Could I just take a moment? I'm sorry, but I wanted to ---

MS. BRADSHAW: The water flow, that's the only thing I'm saying is that -- of the water flow. I understand the water flow up under there. Because I went and looked up all the information that Dr. Parks and others have written about this. So we don't have to get into that debate because I don't want to confuse people. But I try to keep up with it and understand it, but I saw where you had just

plumes, and like you said, that was at that particular time of a picture. So that's ---

MR. BALLARD: That information he showed you was based on -- those were four snapshots: October -- December, January, February and March -- April. Those were four snapshots of the same place taken over a five or six-month period. So you can see the changes that occurred in groundwater concentrations as a result of the treatment.

MS. BRADSHAW: But I'm also wondering -- Turpin, I wish that EPA would get samples away from around Dunn -- Hamilton High School. Because if -- that's where it runs -- surfaces, that area where it runs -- some of the water that come -- some of it, not all of it, but some of it surface from there and runs up under that school. And like Mondell was talking about, when it rains a lot and when it's low and all of that, that creek still runs. And I'm wondering if some of that stuff run out of there. I haven't looked to see if the water changed or anything like that, but I think that we need to broaden it and see, you know, is it coming out.

MR. WILLIAMS: Okay, at this moment -- let me just take a moment out here. We had voted last year or the year before last about the agenda, going through the agenda and the time that the meetings are supposed to end. So the meeting should be ending at 7:30. So, I'm opening the floor for a motion if we should continue the meeting or set a time that we're going to continue it to or what are we going to do. Go ahead, Mr. Tyler.

MR. TYLER: I always hate to be one of the bearers of bad news, but we have the public here, and if they are prepared to get off their jobs and sit through this, I am, too.

MR. WILLIAMS: Okay.

MR. TYLER: I will make a motion to extend the meeting through the time necessary to conclude our business here.

MR. BALLARD: May I have a bit of discussion on that? I would support -- I would second it -
- I would support it if we can let the presenter go through the presentations

without interrupting, holding questions for the RAB Comment Period and the Public Comment Period. Would that be acceptable?

MS. PETERS: Mr. Mondell.

MR. WILLIAMS: Yes, ma'am.

MS. PETERS: If it's 7:30 now, eight o'clock is long enough to hold this meeting. You've got another meeting going to come after this meeting. What are we going to say? So I have objections to just staying until we get through because we can be here all night.

MR. WILLIAMS: Anyone else have a ---

MS. PETERS: Thirty minutes more, that means eight o'clock. You better be through with this meeting because you've got another one.

MR. WILLIAMS: Ms. Brooks.

MS. PETERS: And the public ain't had no chance.

MS. BROOKS: Peggy Brooks. I would love to hear the next presentation, please.

MR. WILLIAMS: Okay, so, the thing is, we are going to extend the meeting for an hour or do we have a time frame?

MS. BRADSHAW: I think that we would like more information that we ---

MR. TYLER: Thirty minutes.

MR. WILLIAMS: Thirty minutes, and if we need more time, we'll -- okay, so we'll continue the meeting. Okay, you were next.

MR. TYLER: I will try to be brief here, brief as possible. I read the BCT meeting minutes here, and it talked about ZVI, and it says "ZVI (unintelligible) to the health department, groundwater briefings." Is that going to be done?

MR. NELSON: Yes, it is.

MR. TYLER: Okay, and, also, some of the information is going to be sent to the state groundwater department. That's going to be done?

MR. MORRISON: In reference to ---

MR. TYLER: "Early Implementation Remedial Action Memorandum," the ZVI.

MR. MORRISON: Yes.

MR. TYLER: Okay, now, also it says that you don't need a permit to put those wells there. I do read the BCT meeting minutes, and I do have questions that tie directly to this.

MR. WILLIAMS: Okay.

MR. TYLER: This is ZVI; right?

MR. WILLIAMS: Accurate.

MR. TYLER: Okay, it's pertinent to his presentation.

MR. WILLIAMS: It's more than welcome.

MR. MORRISON: That's correct with reference to the state and local permits. This is a CERCLA site. CERCLA NPL (National Priority List) sites have the ability to weigh the necessity to obtain permits, but they must meet the substantive requirements of those permits since this is a National Priorities List site. That's what that's referring to. They don't have to get the permit, but they must meet all of the substantive requirements of that permit.

MR. TYLER: Another question here: It says, "Injection well will not remain in place and will not require county oversight." How long will they not be -- like, do you guys have a time frame as to how long you are going to have them in the ground?

MR. MORRISON: That's going to be depending upon the performance of the remedy itself as far as the injections and the monitoring. There is not really a window out there that says on November 15, 2007 we'll no longer need to monitor that. It's going to be as the information comes in and we see that the contamination attenuates through the active remedies that were in place, that it's at a point in time in the future when that is solved.

MR. TYLER: One last question. I see you've got MLG&W (Memphis Light, Gas and Water) involved, and it says: "Mr. Holmes will coordinate with MLG&W regarding access to lay equipment around the fence area."

MR. MORRISON: Could you repeat that, please?

MR. TYLER: I'm reading from the minutes here. According to this here: "Mr. Holmes will coordinate with MLG&W regarding access to their equipment, the lay down

area inside the fence." She's supposed to be quoting MLG&W about of the equipment along the fence line.

MR. NELSON: I could answer that, Jim. That's part of the Early Remedy Implementation that was passed. If MLG&W wishes to get inside the fence, that is a substation, and they have the parking lot.

MR. TYLER: That's what I'm talking about.

MR. NELSON: We wanted to access that. Mr. Holmes at MACTEC is going to talk with MLG&W about accessing that property.

MR. TYLER: What was the reason for that?

MR. NELSON: It is part of the presentation you will see next.

MR. TYLER: I apologize.

MR. WILLIAMS: Okay, Mr. Myers.

MR. MYERS: Torrence Myers. I have a couple of quick questions, one on the slide there. I know you said there was increased concentration at monitoring well 74. What about 70?

MR. NELSON: Seven zero is right here (Indicating). Unfortunately, we didn't sample that as part of the study.

MR. MYERS: Okay, the other one is on your last slide. "No accumulation of undesirable byproducts." Are you saying they were not produced or no accumulation?

MR. NELSON: That's it exactly. They're -- ZVI, the reaction -- the chemical reaction of ZVI with these chlorinated volatile organic compounds tends to go completely to ethane, which is an elemental compound like dychloroethene. Ethene is just the elemental compounds of innocuous product, a harmless product. So, this reaction, if you have let's say a bioremediation, which is bugs that sometimes will chew on these same contaminants, break it down from, say, tetrachloroethene, trichloroethenes and dichloroethene and then maybe vinyl chloride and then the ethene, that's the normal breakdown product with a bioremediation aspect. This would go from tetrachlorine straight to ethene because of the chemical reaction.

So you can just bypass -- sometimes in this you can just completely bypass this other undesirable product or byproduct. I'm not even a chemist here.

MR. MYERS: You say no accumulation of vinyl chloride or DCE.

MR. NELSON: Right.

MR. MYERS: But you're not saying they are not produced, and if they are produced, where do they go if they don't accumulate?

MR. BALLARD: They go from -- they break down. When he says "no accumulation," that means that the reaction strips off the chlorines at such a rate that we don't see these products as breakdown. We don't see them in our post injection monitoring because the reaction has gone right through the breakdown chain to the end product.

MR. MYERS: You took it completely to completion.

MR. BALLARD: That's right. The chlorines are stripped and you're left with ethene.

MR. MYERS: Good case.

MR. WILLIAMS: Ms. Peters.

MS. PETERS: My concern is where do you get all this iron from and what affect would that much iron have on your body. Is this the same kind of iron like if you are low in iron you can take it or is it a different kind of iron?

MR. NELSON: It's food grade iron.

MS. PETERS: Regular iron, if you take ---

MR. NELSON: Food grade.

MS. PETERS: So that means that -- well, I guess your body could get too much iron. Because my doctor had me on three pills a day, and he told me to reduce it to two. So that means if this iron got into the water system, it could affect your health. If this -- that's the reason I'm trying to distinguish where are you getting all this iron. And the next thing of it, in case iron got into the water system, since you can only take so much iron and it's supposed to do something else to your body, and some people are allergic to iron.

MR. NELSON: ARS purchases their iron from a Japanese company.

MS. PETERS: Oh, Jesus.

MR. NELSON: However, it's produced in the United States, but it's a Japanese owned company. The iron is -- when it's introduced into the groundwater, it releases hydrogen, but it rusts, and when it rusts, it would also react in a way it adheres to soils. Just as rust gets on your clothes and it does not come out, it's hard to get rust off of anything, and, so, the possibilities of this iron traveling -- iron does not really travel with groundwater because of its adherence to soil in the aquifer. It's just not -- it just doesn't move.

MS. PETERS: You know, work -- just like here, as they state, iron isn't (unintelligible) enough. That's what's wrong with Dunn Field, got trucks in there, washing machines, paint, washing powder, got everything, and all that stuff mixed together, it rotted, and maybe it is dirt now which will turn into so much mud and other stuff. That's the reason I was wondering what affect that iron would have on -- because you are putting it in the ground. And you know it's going to affect something and get with them, but some of the other stuff down there you don't know what it's going to do.

MR. WILLIAMS: Mr. Brayon.

MR. BRAYON: You're saying that you're dealing with chlorinated VOCs. Did you find any other volatile compounds that you cannot get with this particular procedure, with this zero-valent iron? If there are any left that are volatile and would cause problems, what are you going to do with those compounds?

MR. NELSON: Well, zero-valent iron was selected because it's able to treat all of the contaminants, all of the volatile organic compounds that we have in the groundwater at Dunn Field.

MR. BRAYON: All of them or almost all of them?

MR. BALLARD: All of them.

MR. NELSON: All of them.

MR. BRAYON: There are no -- there are only chlorinated VOCs?

MR. BALLARD: Yes. There are only -- the only compounds which were causes for taking this Remedial Action based on the Risk Assessment and the Remedial Investigation were chlorinated volatiles in the groundwater.

MR. BRAYON: We are very fortunate because I thought there were more than that.

MR. BALLARD: There are other things in the groundwater, but they did not exceed the drinking water standards. And in some cases there are no drinking water standards for them because they aren't considered to present a risk.

MR. BRAYON: Okay.

MR. WILLIAMS: Okay, without anymore questions, we'll continue on with the agenda. (Brief pause.)

MR. WILLIAMS: While you are setting up your presentation, we're going to pause for a three-minute break if that's all right with everyone. (Brief recess.)

NEW BUSINESS - EARLY IMPLEMENTATION OF APPROVED REMEDY

MR. WILLIAMS: Call the meeting to order. Okay, David is ready to talk about Early Implementation.

MR. NELSON: All right, now, this next presentation is on Early Remedy Implementation at Dunn Field. As discussed in the last slide, the final Record of Discussion for Dunn Field was approved in April of 2004. There are several remedies described in the ROD.

MR. WILLIAMS: They are missing a couple of pages, the handout. Y'all don't have this?

MR. NELSON: In the ROD for groundwater there were three remedies selected: The zero-valent iron, which we've just discussed the Treatability Study, the permeable reactive barrier or PRB, and monitored natural attenuation with institutional controls. This is for groundwater.

So, the ROD was passed and signed in April of 2004. The next step was the Remedial Design. As part of the Remedial Design, we're collecting groundwater data as part of the normal procedure to develop or begin development of the Remedial Design.

The groundwater collected revealed a rise in levels of the CVOCs in an area west of Dunn Field that we're collecting at this time. I'll emphasize again,

they're collecting groundwater samples in the area of the proposed PRB location.

MR. NELSON: Now, specifically, we collected groundwater from MW54, which is west of Dunn Field. At the time of the ROD, which is right around this date (Indicating), we had collected -- this chart shows you the number of samples we collected from MW54. Before the ROD was signed and before it was actually produced, we collected data for the Feasibility Study, and it showed a slight increase than it did before, but by the time of the ROD, it showed some decrease.

So we went back to the Remedial Design to sample MW54, to begin our design for the permeable reactive barrier, and we noticed an increase in the concentration of CVOCs. But to confirm that, we sampled it again, noticed an increase, and then we've also sampled it since. The concentrations increased each time we sampled it.

Given that, additional groundwater monitoring wells were installed in May and August of 2004, and this was to confine the boundary of the affected groundwater that had moved off site from Dunn Field. The data collected from these new and existing wells, such as MW54, showed higher CVOC concentrations further west than previously thought at the time of the ROD.

Now, this next figure, I'm sorry you can't really see the blue contour, but I'll try -- this is Dunn Field in this area here (Indicating). The railroad tracks are here (Indicating). This is Ragan Street. This is the electric substation. Now, this figure shows us the concentration of CVOCs, the higher concentration of CVOCs at the time of the ROD, and basically there was MW73 here and extended west of Dunn Field out beyond -- a little bit beyond Rozelle Street, at the corner of Rozelle.

MR. NELSON: Now, with the installation of the new wells west of Dunn Field, we see that the higher concentrations extend from the western perimeter of Dunn Field over to an area just south of the MLGW electric substation. Given this data, the BRAC Cleanup Team, the BCT, decided to begin Early Implementation of the zero-valent iron injection, which is one of the remedies for the groundwater. This is in an effort to reduce the concentration of CVOCs and create conditions more favorable for success for all groundwater remedy, which includes, as stated earlier, the MNA, monitored natural attenuation, and the permeable reactive barrier, PRB.

ZVI will be injected at the leading boundary of the off-site groundwater impacts, and as you know from our previous discussions, ZVI is pure iron metal and rapidly reduces concentrations of CVOCs through chemical reaction.

As we state again, the Treatability Study showed a significant rapid reduction of CVOCs. The ZVI injections will be implemented in a primary and secondary treatment area. Let me see if I can get to the next -- these are the two areas (Indicating). Area one is located slightly north of the CN (Canadian National) railroad tracts, Menager Avenue here, Rozelle Street and the MLGW electric substation. This figure is pretty busy, but if you have ever been in this area, you will notice there's a lot of power lines that criss-cross the entire areas. There's a little bit of access issues associated with that. The other areas -- MW44 lies somewhere along the area where the transmission lines cross over the railroad tracks.

The Early Remedy Implementation field effort includes three main activities: Installation of additional monitoring wells, installation of the ZVI injection points, and injection of ZVI through the fluvial aquifer, which is, again, 80 to 100 feet below ground surface, and that will be followed by monitoring of groundwater subsequent to the injection.

MR. NELSON: Now, the installation of additional monitoring wells has already been completed. It was completed in October of 2004, actually just a couple of weeks ago. Eight new monitoring wells were installed in seven locations, upgradient and downgradient to these treatment areas (Indicating). These monitoring wells help define the boundary of the Early Implementation areas as well as to help confirm reduction of CVOC levels through the groundwater sampling.

Now, the installation of ZVI injection points is very similar to what we did in the Treatability Study. However, it will be a few more points than what was done during the Treatability Study. We'll have 18 injection points, and we're going to inject approximately 175,000 pounds of iron. The work is supposed to begin in mid-November 2004. We need 30 days to do this, and it will involve the same equipment that was used in the Treatability Study: a drill rig, the injection equipment as well as support vehicles.

This is another map of our injection areas (Indicating). Right here, the railroad tracks aren't shown on here, but they are -- they run right through here (Indicating). This is Rozelle Street. Menager is over here. This is the electric substation. All these various points that are highlighted are either monitoring wells or the injection points. This yellow line that curves around this, that's a 500 microgram contour line which we're anticipating treatment - - well, that was our demarcation line for treatment.

The area back over here, the second area, is around MW144, which is just west of Rozelle Street and involves approximately five injection points, and there's four monitoring wells surrounding that area. All the results from this remedy will be reported to the BCT and is already included in a part of the Dunn Field RD, Remedial Design document, and will be presented to the

RAB, the community in the EnviroNews, as well as the RAB meeting, which is the next RAB meeting. And that concludes that presentation.

MR. WILLIAMS: Does anyone have any questions? Okay.

MS. PETERS: Ain't nobody got no questions. Go on to the next part of the agenda.

MR. WILLIAMS: Well, Mr. Tyler does.

MR. TYLER: This is repeating it, but about the point that you're going to inject that much iron into the soil, and I'm sure it's what you call -- what's the proper terminology? It's clean iron. There are no long-term side affects from injecting that much iron in the soil over a period of so fast, for so many months?

MR. NELSON: You know, the iron is actually -- it reacts with the -- like I said, it's zero-valent iron, and it reacts with the chlorinated volatile organic compounds as well as rust down into the aquifer. So when it rusts, it will also react with soil. It won't mobilize and won't --

MR. BALLARD: Won't create an iron plume.

MR. NELSON: Yes, wouldn't create a plume of iron that would travel along with the groundwater.

MR. TYLER: My question was would it react with anything else beneath the soil.

MR. NELSON: Well, it binds to the soil.

MR. TYLER: But with something else in the soil.

MS. BRADSHAW: Other heavy metals.

MR. NELSON: I don't know what else could be in that soil.

MR. TYLER: My question, it was a dump.

MR. NELSON: Not this area.

MR. TYLER: Dunn Field?

MR. NELSON: No.

MR. BALLARD: This area is the aquifer.

MR. WILLIAMS: Ms. Bradshaw. Then we're going to take Mr. Ballard, and then we're going to go to the Public Comment.

MS. BRADSHAW: I just have a comment.

MR. WILLIAMS: Okay.

MS. BRADSHAW: When you're putting that much iron into the water -- and I know you said this is a powder form. When iron or water -- iron sort of turn into a big clump. And I'm wondering, you know, how you're going to get this thing in without it binding together and it turn into a big clump. Because iron and water is going to become a solid. You know, you're saying it's a powder, but like I said, I still need to understand the technology, and I want to make a recommendation that someone come and tell us about this particular technology. Because Turpin is saying it's only one, the chlorinated VOCs.

MR. BALLARD: Well, that's what we're using it for. However, it is used to treat heavy metals and radioactive nuclides as well.

MS. BRADSHAW: You know, I can argue with you all night. So I don't even want to get into this because there is some other stuff down there. I'm still wondering, and I know that you can sometimes use certain things to get radioactive nuclides to kind of, like, spread them out, but it doesn't just break them down, just spread them out where it won't be concentrated in one particular place. Now, I understand that technology.

But iron and water turn -- I just want to know how this technology works within itself. This is a little new for me and -- because I've seen a lot of different technologies over the years, but this one is a little bit new. I haven't ran across this, and not that I know everything, but I would like to know how it works. If you're bringing in an engineer or somebody that has used this technology -- I'm going to call Olan Wells from Hunters Point (Naval Shipyard-San Francisco) and ask him about what happened there. That would kind of, like, help me, and this is a community person that lives in California. I also would gain reference with Richard Lanny Siegel. I see he had a nice letter, but, you know, I would like to talk to him direct and see how they felt about this particular technology. That we could feel comfortable with it. I just want to have that little security blanket.

MR. WILLIAMS: Ms. Bradshaw, I'm glad that you asked. I don't know if you're just commenting or asking a question, but I guess it will be duly noted that you

did have interest in knowing exactly the effects and how this chemical reacts with the water. Hopefully between now and the next meeting someone will either mail you some information or tell you something or if we can get someone in or something like that.

MS. BRADSHAW: Yes. I think that it would help ease the community's fears, and that we get someone in that is an expert in that field to come and explain it. That's a recommendation.

MR. WILLIAMS: Okay.

MS. BRADSHAW: That is not asking. That's a recommendation from -- I don't know if I could get a second on this or not, but a recommendation for the RAB.

MR. TYLER: Second.

MR. WILLIAMS: Okay, well, Ms. Bradshaw raised a question here about getting a person to come in and interpret some of the information about the iron, and Mr. Tyler seconded it. So, now my thing is to ask who all are in favor of this by saying "aye."

THE BOARD: Aye.

MR. WILLIAMS: Any opposed? (Brief pause.)

MR. WILLIAMS: Abstained? (Brief pause.)

MR. WILLIAMS: So, hopefully that we have approved this that something will come about by that. So we'll go on with Mr. Ballard.

MR. BALLARD: I'll try to make this short, but I just wanted to point out what we've presented in time context, and that is that it was the July RAB meeting when the RAB as a whole team -- I'm sorry, RAB -- the BCT as a team became aware of the problem that David has just briefed us on tonight -- being aware of these increased concentrations in an area where we weren't anticipating them. And between the middle of July and the middle of November when we're going to be actually physically taking action on it is four months. That's a very short time frame in the Superfund world from problem identification to actually getting out and taking a Remedial Action for it.

Of course, we had an advantage in that we had already completed our Treatability Study for this technology and had evaluated and found that it was effective for treating the contaminants. But even so, the effort put forth by the DLA and its contractors to work cooperatively, one contractor putting in the wells, sharing the data with the design contractor who was providing interpretations and then just working collaboratively to try and refine our objectives, knowing that this isn't the final action, but being able to come to you tonight and say, you know, in less than a month from now we're going to start putting this treatment in the ground, the contracts are in place, the iron has been ordered. It's just a real success story for this, and, again, it's not the final word on groundwater for Dunn Field. But what we're doing is getting out ahead of a problem and cutting it off before it could potentially threaten the water supply in the deeper aquifer.

MR. WILLIAMS: Okay, Mr. Covington.

MR. COVINGTON: A couple of questions. Jim Covington. Two questions. How long will monitoring continue into the future, and if this process reverses itself or quits working, what will happen then?

MR. NELSON: The monitoring is scheduled -- there's performance monitoring associated with this. There will be two events. However, the wells that are on Dunn Field as well as west of Dunn Field are part of a semi-annual sampling event that is ongoing, has been going on for a while. So, actual performance sampling on this will be continued.

MR. BALLARD: It's going to continue until -- basically until we achieve the cleanup objective stated in the ROD, in the Record of Decision, which is restoring the groundwater to drinking water quality. When we have reached that point and have achieved that objective, then the site will be eligible for deletion from the National Priorities List.

MR. COVINGTON: The other part was ---

MR. BALLARD: This is not a reversible process. The treatment is irreversible. It just -- what is it. Thermodynamics doesn't cause the chlorines to come back on to the ethene and reverse the process.

MR. COVINGTON: So, the plume's moving fresh water in that is still tainted?

MR. BALLARD: Yes.

MR. COVINGTON: Are you going to have to continue to inject iron as long as that water is coming in?

MR. BALLARD: Well, the iron has a -- we don't know in this aquifer exactly how long the iron will continue to treat. So far it's still working ten months later at Dunn Field. We're told by the vender I think that it has about a 12 to 18 months life-effective treatment time. So, for the next 12 to 18 months this early action should continue to provide treatment. In that time, we're expecting to be undertaking additional cleanup actions at Dunn Field and in the groundwater between Dunn Field and the substation.

Basically what we're trying to do is cut off the head underneath Dunn Field, and then through additional treatment, treat the body of the groundwater as it flows west toward the tracks and toward the substation. And then through those treatments we are reducing contamination to relatively low levels that monitored natural attenuation through dilution and dispersion, primarily, will be able to handle the residual. And we're focusing on long-term monitoring to ensure that the areas where we may get -- where groundwater can flow to deeper aquifers is not threatened.

MR. COVINGTON: What's the difference between the boundary and the injection?

MR. BALLARD: Boundary?

MR. COVINGTON: The permeable whatever.

MR. MOORE: PRB.

MR. BALLARD: Oh, the permeable reactive barrier and the barrier beyond?

MR. COVINGTON: Yes. What's the difference?

MR. BALLARD: There are two different applications of the use of zero-valent iron. The technology we're talking about and that they presented is a horizontal dispersion of powdered zero-valent iron within the aquifer, contacting the groundwater that way and treating it there.

The permeable reactive barrier is -- as the name suggests, it's a different application using the granular iron that's injected fairly thin but much more robust in the amounts of iron used which is placed across the flow path of the water, and then contaminated groundwater flows through this barrier. It's not really a barrier, per se. It's more of a permeable reaction treatment though, and water goes through it and contacts the iron, and it flows out at reduced concentrations. The design objective is that the affluent or that which flows out of the barrier would meet or be very close to drinking water quality.

MR. WILLIAMS: Okay, Mr. Eskridge.

MR. ESKRIDGE: This is Reginald Eskridge. In your prior presentation on the treatment study, I believe you talked about -- it said on our handout where you had injected the iron into the soil into those wells where it sort of had contamination around it, and, so, is it getting worse now or is it not?

MR. NELSON: Say that again.

MR. ESKRIDGE: Well, could you explain that so we can understand exactly -- because it seems like you're getting ready to do it again and the same affect is going on.

MR. NELSON: Those were injected into the center of the plume and not using a significant amount of iron. It was injected into the center of the plume. So, the study area was surrounded by contaminated groundwater. So, when we injected, the active -- this was a very high concentration area. So, the zero-valent iron reacted quickly, but you have a flux of material moving through that zone.

Now, the concentrations did increase that was in those monitoring wells because most of the iron in that area reacted and reduced -- it basically used its life up at that point, and you could see a little flux of the other contaminated groundwater moving into that zone.

Now, one of the points of that is that MW73 was upgradient of the study area. So, the iron was not -- probably did not go out to that point, but there was a halo effect around the injection area.

MR. ESKRIDGE: Well, along that line, then, do you think that you should do additional studies there before you go this full fledged measure that you're attempting to do? Because you're not -- it doesn't look like you're quite sure that that's going to take care of it or not.

MR. BALLARD: Mr. Eskridge, could I -- if you don't mind, because it's more of a question of whether we should make a decision to do that. And as the contractor that we gave it to would do, you know, what we tell them. But I think you've got to understand as well that in addition to what David said about the injection having perhaps displaced some of the contaminant which has flowed back into the area, there is also a significant -- highly contaminated unsaturated zone above the groundwater at this location which is continuing to contribute, and it is subject to treatment in the overall remedy, but we haven't constructed anything on that.

We're going to do vacuum extraction to draw soil vapor extraction to draw the contaminants out of the soil. So we're going to cut off the source to groundwater. We're going to cut off the highly contaminated groundwater when we do the ZVI injection. And, so, what you're seeing may be a result of both the flow back through of contaminated groundwater that was either displaced or already upgradient and is just naturally flowing back into the area and also contamination coming down.

But to put it in perspective, concentrations in that well, monitoring well 73, are approximately 40,000 parts per billion of VOCs prior to the injection. Right after the injection it was approximately 100 parts per billion. So from 40,000 to 100. The rebound we're seeing has stabilized it around 2,000 to 2500 parts per billion, and that's been maintained since the -- through the second, third and fourth post injection sampling events. So, it still represents a 95 percent mass reduction, and that's a successful treatment.

MR> BALLARD: When we implement the soil vapor extraction to remove from the unsaturated soil, we will also be doing additional injections in this area of zero-valent iron as part of the treating of the source material of groundwater. So this particular area will be hit again.

The area that we're treating right now, we're going to monitor it to make sure that it continues to be effective. If additional injections are found to be needed, they would be done. One of the nice things about this approach is that when we put the treatment in the groundwater, we don't leave a lot of infrastructure with pumps or wells that need to be maintained except for your monitoring wells. And then if your monitoring results over time are losing some of its effectiveness gets to a point where it's no longer acceptable, then we would have to take additional measures, whether it be injection of more zero-valent iron or something else.

I think what we're trying to do right now and what we're trying to communicate to you and to the public is we're using the tools we have in our toolbox right now which we know are effective to address a problem that is worse than we anticipated at the time of our Record of Decision. And we're trying to get to it quickly and be as effective as we can, given the limitations and the constraints within that electrical substation.

So it's not the final answer. What it is -- it's a holding action, if you will, but something that we can do now in response to the problem and protect the drinking water supply.

MR. WILLIAMS: Okay, I'm going to take your last two cards that's here, but after that we must go on to the Public Comment Period.

MS. PETERS: We're going to be here all night.

MR. WILLIAMS: So, Mr. Tyler, then Ms. Bradshaw. We'll cut this off so we can ---

MR. TYLER: Public Comment Period. I didn't get it in.

MR. WILLIAMS: Okay, so, Mr. Tyler's -- what about you, Ms. Bradshaw?

MS. BRADSHAW: I just want to say you said that you're going to try to go back now and cut off the source that is contaminating the groundwater. Is that what you're making a statement to?

MR. BALLARD: Yes, yes.

MS. BRADSHAW: But as long as it's getting a source, groundwater is going to be contaminated; right?

MR. BALLARD: Yes.

MS. BRADSHAW: It's going to keep -- continue to drain down ---

MR. BALLARD: Yes.

MS. BRADSHAW: --- into the groundwater, but it seems like you're doing things backwards.

MR. BALLARD: It sure does, doesn't it? I agree. But what we're presented with right now is a situation where you have -- if this is your source over here, and over here is underneath the substation where this treatment area we're talking about, you've got a dynamic system that's migrating not fast out there under the substations. Our current estimates are maybe 50 to 75 feet per year is the groundwater flow velocity, but, nevertheless, you've got it migrating out here. So, if you want, we can stop over here, and we can concentrate all our efforts at the source and cut it off, and that stuff keeps migrating or we can cut it off, get something in front of it, and then go back and deal with the source and work at it from both ends toward the middle.

MS. BRADSHAW: Because I thought that's what we were doing years ago ---

MR. BALLARD: With that one exception.

MS. BRADSHAW: --- is going to the source, getting the source. All the millions of dollars that was spent getting the source out of the ground so this wouldn't happen. What's going to happen to the pump and treat situation?

MR. BALLARD: The pump and treat system, once we get the soil vapor extraction ---

MS. BRADSHAW: Is it cut off right now?

MR. BALLARD: No. It's working. The soil -- it's working and it's collecting, and the contaminants are currently migrating from Dunn Field toward the west, but it's not a perfect system.

MS. BRADSHAW: No, it's not.

MR. BALLARD: We know there's some leakage. We documented that in our five-year review a year ago, January of 2003. And because of that, the Record of Decision selected a different approach to cleaning up the groundwater and selected an in situ treatment technology. The Record of Decision also stated that once the source area under Dunn Field remedy has been constructed that the treatment system or the pumping system that's currently in place will be mothballed.

MS. BRADSHAW: See, that's millions of dollars for that system, going to be millions of dollars. I don't know how much for the iron, and then you've got to go back in and get the source. And it looks like every technology -- yes, this is the thing that's going to be a cure-all, and it seems like that it's error after error.

I would like to see some solid ground, some solid facts where things have worked, and I know that the pollution issue of cleanup is a dream. Because I don't know too many places that have been cleaned up prestige and put the land back like it was.

MR. BALLARD: Let me tell you, Love Canal was just deleted from the National Priorities List.

MS. BRADSHAW: Don't even offer -- but I know, but it doesn't mean Love Canal is clean. Love Canal -- you can use that, but Love Canal is not clean. It's because poor people would rather not be shot and live on toxic ground. So don't even bring up those issues because I know the facts about that. Excuse me. I'm sorry.

MS. PETERS: You ought to let the public talk.

MR. WILLIAMS: All right, so, are you finished? (Brief pause.)

PUBLIC COMMENT PERIOD

MR. WILLIAMS: So, if she's finished, I would like to say that it's time for the Public Comment Period. But before they come up, I just wanted to make sure that everyone has signed in and that we have a transcriber over here who is taking minutes.

When you talk, try to speak very clearly, and we have an information repository here on -- I mean, not here, but on the base. Also, we have a web site that you can go out and retrieve information about what goes on at the Restoration Advisory meeting. So, without further adieu, the floor is open.

MS. SHORTER: Good afternoon. My name is Gwendolyn Gilbert Shorter. My parents reside at 1734 South Barksdale, and if a good rain comes, I guess we could be contaminated with some of the contaminated area. One thing that I really -- first I wanted to go on record. I'm allergic to iron. Medically, I'm allergic to iron, and to sit here tonight and tell me you're going to use tons of iron, it frightens me. I'm already sick with thyroid cancer.

So, to me, as casually as you use the word "contaminant," you are offering me another contaminant. You know, I can look at -- I have the article right here, and I was just devastated when I read it.

Being a college graduate from the University of Memphis, the bottom line to this article is we're in trouble over there. There is still something going on that everybody sit around the table and -- you know, it's just like we ought to be shooting basketballs up in the air in here. I have data just on the street that I lived on alone.

When I read this article, I just had to turn on 95.7 (radio), get a spiritual backing and just reflect on what's going on on that street. We have had 14 people to die on the street in 18 houses. I am the only living person with cancer from that street that's living today, which includes my father. Also on this street we do have residents on this street that worked at the Defense Depot. We have 11 cases of thyroid conditions. I am the only one that has thyroid cancer, two and three members in a house with a thyroid condition, and we're not going to link this to environmental? No common fathers, no common mothers.

MS. SHORTER: As I said, cancer is the leading cause of death on this street in addition to other things like sickle cell and diabetes, kidney failure, heart failure, which can be a link associated with any of these other illnesses. But the one that really gets me -- because I am a biology major -- is the birth defects on that street. We have six in the second generation, which would be people that were born from my parents. In the third generation, presently we have two. One young man has bore two retarded children. And the strange thing about this, for some strange reason, it's affecting the people that are presently in the age group of 50 to 55.

Now, according to my thyroid cancer documentation that I received, iron is something that would affect your thyroid condition. Now surely if my street has this many thyroid problems and -- excuse me -- Ms. Black-Moore, her sister, who is in the same sorority as I am in -- I became ill in September. Her sister had a thyroid condition in November, lived all the way around on the other side of the Depot. There is a thyroid situation that exists in that area.

Now, introducing iron in mega tons, 700 to 800 tons of iron, that's going to do something to people in that area that have this condition. Now, while we have all the engineers sitting around the table, while we have all the city, county folks sitting around the table, I think you need to put some medical people around this table. Because there is an issue that we are not looking at. You are just trying to catch that contaminant that's running rampant.

Now, I had thought about this once before because in an editorial of the Commercial Appeal about three or four months ago you want to plainly make it seem like it's nothing over there in that area. That is absolutely unreal, absolutely unreal.

Now, I say that because I'm also a Memphis city schoolteacher who is on leave for two years now because of health situations. But prior to that I worked with something called the SWEEP (Storm Water Environmental Education Program) program, City of Memphis. Anybody here from the City of Memphis? SWEEP is an environmental educational project that the city promotes because of Velsicol's contamination in North Memphis.

Now, I know what Velsicol is because I worked at Plough as a research technician. I am much closer to this contamination than we casually talk about than Velsicol is to North Memphis. And if contamination go all the way to Cypress Creek and Cypress School -- and I'm sure you being a part of EPA, EPA funded that grant. I'm sure you know about it, Mr. Ballard. Yes, EPA funded the grant through Shelby County, and Cypress was included in it, and we come in one day to school, it's okay. The next day they have put a fence all around the boundary of the lot of the school. Now, let's get real. (Unintelligible) catch day is much closer than Velsicol is to Cypress Creek.

MR. WILLIAMS: Would anyone else like to ---

MS. SHORTER: Oh, I have another question. Why is it we're so candidly mentioning solvents? Solvents have names. As you know, there's a biogenic agent. Solvents have names. My name is Gwendolyn Shorter. Why we can't say what the solvents are? Because would that lean more to more understanding?

MR. BALLARD: Do you want an answer to that now?

MS. SHORTER: Sure. Please.

MR. BALLARD: We say solvents in substitute for a wide range of letters. You know, we would be saying trichloroethene, TCE, tetrachloroethene, PCE, 1,1,2,2 dichloroethene, 1,1,2,2 perchloroethene.

MS. SHORTER: We can put all of it on there.

MR. BALLARD: The point would be that when we're making a public presentation, we try and make it clear. And in order to do so, we try and define acronyms or define

our terms and then use the term solvents to encompass the contaminants that we are dealing with.

MS. SHORTER: Well, where is a list of those solvents?

MR. BALLARD: It's in every information repository that's associated with this site.

MS. SHORTER: But I'm saying everything we have here today -- today, and it seems as though this should break it on down.

MR. BALLARD: It's in -- at the very next meeting in the public presentation we can have a list of all the Chemicals of Concern that we are dealing with in this Remedial Action with their chemical names and their chemical acronym.

MS. SHORTER: And their effects on the environment as well as humans.

MR. BALLARD: That's -- we can provide that, too, if that's available.

MS. BRADSHAW: We can get that for you.

MR. BALLARD: Ms. Bradshaw can get it for you.

MS. SHORTER: But, I mean, I just don't understand how thyroid conditions run rampant in that area.

MR. BALLARD: That's beyond the scope of what I can talk about here tonight or any one of us.

MS. SHORTER: What do you mean, "Beyond the scope"?

MR. BALLARD: Well, beyond the scope of what we are talking about -- what we are able to talk about at the RAB. We have a representative from the Agency of Toxic Substance and Disease Registry and ---

MS. SHORTER: So you're saying nobody here is, as she was saying, is literate enough to talk about it; right?

MR. BALLARD: I don't know how to answer that, ma'am.

MS. SHORTER: Well, it's just that those -- when he was explaining all of the things that he was talking about, you know, when he just didn't know, he said he didn't know. Either we know it or we don't know it. So, if this person -- maybe I admitted this, I should correct it.

MR. BALLARD: I'm not -- I'm not a toxicologist or a medical person.

MS. SHORTER: Is this person a medical person, the person that you're talking about?

MR. BALLARD: I don't think we have a person here tonight who is ---

MS. SHORTER: No, I'm saying the person you're referencing. Is he medically inclined? Because I'm seriously on alarm that you are going to be using something in that area that I'm allergic to, and you're not going to tell me you're going to use a fine powder and it won't disburse into the air, when I get an allergic reaction to a swallowing test, and I know there's not a lot of iron in that, but now you're going to put it in the air?

MR. WILLIAMS: I've got a quick question here for you before you answer. When we do feasibility health studies, how do -- it do not leave the ---

MR. WILLIAMS: Okay, that's what ---

MS. BRADSHAW: It's not off site. None of it's off site. ATSDR (Agency for Toxic Substances and Disease Registry) does not do anything off site. So, you should quit using them as a health agency because they're not. It's a site evaluation of that particular site. And, so, we really need the definition of what agencies do and what's their responsibilities.

All right, the health department is supposed to help, but, you know, citizens just have to be smart and do it themselves. Because I know after the ten years of being with this, I haven't had the adequate help that we need to address the issues that we know. The RAB was set up just to address the chemical agents, was to address the cleanup. There was no venue for health, and when ATSDR come in, it still wasn't a venue for health. Because when they did the second health assessment, we were told it was going to be just like the first one, and it's -- we got the wrong definition of what health assessment means. It should have been called a site evaluation of the particular site. Because they don't go off site.

MR. WILLIAMS: Okay, now, the reason that I brought that up is because I wanted the public to know that their comments are not falling on deaf ears. It's just that the issues that we address is not somewhat the issues of just out of the community. I don't want them to think that we don't feel what they feel. Because I live in this area, and some of the other people live in this area. So, their comments are not falling on deaf ears. It's just that ---

MS. PETERS: He's got some information he wanted to give her.

MR. TYLER: EPA has a web site, and it would list the Depot on the Superfund site and will list some of the chemicals that are found on Dunn Field, and these are for EPA. So, this is what they say is there. So you can go on their web site and try to get in the Superfund and get in Memphis, and possibly you can find out what the record said was legally -- well, wrong choice, but what was buried on Dunn Field, and what was not buried on Dunn Field you have to go to the historical records. I have been around the ball game a number of times. Historical records are not as accurate as I think they should be, but that's just my opinion. Take a look at their web site.

MR. MOORE: My name is Benjamin Moore. I'm a regional representative for ATSDR.

MS. BRADSHAW: I can't hear you.

MR. WILLIAMS: Tell them what ATSDR is.

MR. MOORE: My name is Benjamin Moore. I'm a regional representative from ATSDR. That's the Agency for Toxic Substances and Disease Registry. We are a public health agency. We produce a document which is called Public Health Assessment, but as Ms. Bradshaw indicated, we do not come out and assess the public health. The term of the document is misleading because a lot of people think it means that we come out and do a physical or give a physical to the community people to assess their health. But we don't do that to document -- assess the release of chemicals to the environment that might affect the health of the community people within the area.

We did do -- we did a public health assessment. We did I think two health consultations. The difference between a health consultation and health assessment is that a health consultation answers one particular question that a community person might have or a community group might have with reference to their health.

All our documents are part of EPA's repository or the Depot's repository.

You can go there and read whatever results of those documents state. I'm not

an M.D. So I can't address your concerns about your particular problem. We do have M.D.s and toxicologists, those types of people at our agency who can address health concerns. So, I hope that clarifies.

MS. SHORTER: So, what kind of concerns did you have in this document? What kind of concerns did they find -- assess -- assess? And I know you can reference me to the document, but if it's a part of your agency, surely you can bring me up to snuff on it.

MR. MOORE: No, I can't, not the way that you want me to bring you up. The documents basically said that there were no present adverse health affects coming from the environmental samplings that were analyzed by us that would affect or caused adverse health effects to the community.

MS. BRADSHAW: But ATSDR didn't run any sampling. EPA did it. So clarify that.

MR. MOORE: No, we don't. We analyze sampling that's conducted either through -- by EPA or PRPs (Primary Responsible Parties) at a particular site.

MS. SHORTER: So, you did that, like, in 1997? We're talking about 50 years ago.

MR. MOORE: No. The last public health consultation I think was done in 1999.

MS. SHORTER: Right, but I'm saying when did you do it before then? The Depot has been there since 1943.

MR. MOORE: Yeah, we've been out here since -- for several -- ten years.

MS. SHORTER: But that don't address what happened 50 years ago though. Do you see what I'm saying? What I had happen to me, it didn't happen in 2004. It happened, as far as my medical doctor tells me, 15 years ago. So, if you have only been here ten years, what happened to me happened ---

MR. MOORE: Right, before we got involved with the site.

MS. SHORTER: That's right.

MR. MOORE: And the concentration of the chemicals at the point that we got involved with the site definitely was less than what it was during the point of time that you possibly was exposed to whatever was going on.

MS. SHORTER: Yes.

MR. MOORE: And we don't have capabilities to determine what was done way back then and then try to extract the concentration or chemical duration that you were

exposed to, whatever that chemical was, to tell you how it would affect you now. But we -- based on what was sampled when EPA did the sampling and out analyzing the data, it indicated that there were no adverse -- no adverse health outcome would come from the amount of chemicals that were released into the environment.

MR. ESKRIDGE: Mr. Mondell, I have a question.

MR. WILLIAMS: Okay.

MR. ESKRIDGE: I know you're not here to take questions, but let me ask you a question.

MS. CHAPMAN: Why would you say it's contaminated if it hasn't affected anybody? I'm a survivor of colon cancer. I had two neighbors right next to me that died of cancer. I still live there on Silver Cove right behind the yellow building. Why are you saying it's contaminated if it hasn't affected anybody? What is -- I don't understand that.

MR. MOORE: Well, this is just like the difference between clear water and dingy water. It's contaminated, but how much of that contamination will cause you harm?

MS. CHAPMAN: So the contamination has not affected us?

MR. MOORE: Well, probably so, but I don't know how much it does affect you. EPA has regulations ---

MS. CHAPMAN: And I have been on television several times. In my neighborhood -- I don't have the count tonight because I didn't know I was going to come until about 5:30, but half of my neighborhood -- I happen to be the cancer survivor. I know what's going on now there. I have been along with Ms. Bradshaw for years. We have been here. You all are just kind of giving us the run around. What you're saying to stuff -- you know, I sat here and you said "The iron that he's going to put in his water," said it -- let me see, "Iron don't travel with groundwater." What are you putting it in there for? I just took your notes. You said it don't even travel with groundwater. Why are you going to put it in there if it's not going to travel with groundwater?

MR. BALLARD: The groundwater travels ---

MS. CHAPMAN: It's going to stand still?

MR. BALLARD: The groundwater travels through the iron, and it's treated as it travels through.

MS. CHAPMAN: Yeah, but that ain't what he tells me. He said it rusts, and you got it from Japan, you said. It rusts, it don't travel with groundwater.

MR. BALLARD: It doesn't -- the particles that are injected remain where they come to rest, and groundwater flows through it, comes in contact with the iron, and in doing so, is treated.

MS. CHAPMAN: So, the iron has purified water.

MR. BALLARD: I'm sorry?

MS. CHAPMAN: The iron has purified water.

MR. BALLARD: 1,1,2,2 perchloroethene, trichloroethene, tetrachloroethene ---

MS. CHAPMAN: Just give me a simple answer. It's called purifying the water.

MR. BALLARD: Solvents. Solvents.

MS. CHAPMAN: I don't need all that. I just asked you was it purifying the water.

MR. BALLARD: The chemical contaminants which -- the chemical contaminants that are exceeding cleanup standards, okay, the chemicals which make the water unsafe are treated by the iron and reduced in concentration.

MR. WILLIAMS: I have a quick question. Who set the standards for you all to do the sampling? Who set y'all's standards for -- to say what level of contaminant is safe and unsafe? How do ---

MR. BEN MOORE: That's EPA's job.

MR. WILLIAMS: Okay.

MS. PETERS: Y'all know scientists do that. EPA can decide how much your body can have.

MR. ESKRIDGE: Let me follow up with this question.

MR. WILLIAMS: Okay.

MR. ESKRIDGE: Mr. Moore, we've had several citizens from the neighborhoods to complain about health issues to the point where I think that -- well, I'm asking you, is there any governmental agency that can take a look at that by going in the neighborhood and actually survey -- not only survey, but actually examine some of the citizens there?

MS. BRADSHAW: We tried to get that done. Let me bring everybody up to a point. Because a lot of the questions are getting asked over and over again. We asked -- the community group tried to set it up where we would have one clinic to monitor the people in our community, and it was supposed to have been set up by Harold Ford, Jr., the state legislators that's in our area, Lois DeBerry, and I think the health department was involved at that particular time, and something went wrong.

So we was supposed to have gotten a grant where it would have a database of the people coming through the clinic, what was going on with the community, and be able to monitor who was sick, and actually they would be able to get health care in the process. And that's what our elderly citizens has been complaining about, saying, "My whole check have to go for medicine," and we, as a community organization, tried to have the clinic set up closer in proximity of our area, and we were supposed to get it built. It was approved, and all of the sudden it dissipated.

MS. BRADSHAW: Right, because it was told too much, and we knew that we wouldn't get that clinic, and the process has been ongoing. We know there is a health problem in our community. It's a health crisis. It's not a problem. It's a crisis, and it seems like the agencies are sitting back and watching us die. We pay the doctors to watch us die, and it's not just your street or Ms. Chapman's street. It's all of us, and it's just an ongoing process. If you want some information after we leave here, I'll do everything I can, and if you've got some ideas to help ---

MS. CHAPMAN: You do not have any chemical doctors in Memphis?

MR. WILLIAMS: Excuse me. I appreciate the information that was given, but we must get the public into this.

MR. MOORE: Let me try to address -- let me respond to the public comment. We did have public meetings where we invited the public to come out to our meetings and give us their health concerns. We had a couple of churches ---

MS. BRADSHAW: And the last one that was -- it didn't even happen. It would get closer and closer to setting up ---

MR. MOORE: Well, the only thing that we can do is let you know through the paper or through the flyers where we will be so that you can come and tell us. That's the only way we can collect a bunch of information about community problems.

MS. SHORTER: Set up another one. Set up another one. I guarantee you I'll get you some folks down there.

MS. CHAPMAN: I stopped coming because after I found out what the Depot was doing -- they weren't concerned about the people. They were concerned about setting up new companies on that Depot site. It's 29 new buildings. I mean, we've been set up in there, and these people are going to get contaminated that's working up in there. They wasn't concerned about the people. That's why I stopped coming. I have been coming since 1995 or 1996, something like that.

MR. WILLIAMS: Well ---

MS. CHAPMAN: They wasn't concerned about the people. They just wanted to put some businesses out there, and that's all they are concerned about now.

MR. WILLIAMS: Okay, what we're trying to do, we're trying to get the public to offer comments or to ask questions, but at this present time we are really not set up to give answers to a lot of the questions that is asked. If you ask the question or if you make the comment, and if you would like some information sent to you, please do so. We will try to address your concerns, but right now we are really not set up to really give a lot of dialogue. We will accept any comments or questions that's being asked. Please give your name.

MS. MOORE: Ms. Chapman, would you please state your name?

MS. CHAPMAN: My name is Jenny Wicks Chapman. I live at 2391 Silver Cove.

MS. SMITH: Janice Smith. One of my questions is how much water is in the highly contaminated area where the implementation of iron was injected? And the second question is can the water on the Depot be stopped any kind of way and rerouted? That's just a question.

MS. PETERS: Where are you going to route it to?

MS. SMITH: Well, getting water from somebody else.

MR. BALLARD: Just to make it clear that the water on the Depot -- or the water underneath the Depot is water that is contaminated. The drinking water supply is not drawn from this groundwater, from this aquifer, the groundwater, but there is a potential for some communication -- for some migration of the shallower water to deeper aquifers, and that's what we're trying to deal with and prevent here.

So, no one is currently using this water, but the contamination is such that we want to prevent the possibility of that occurring in the future.

MS. SHORTER: How much water?

MR. BALLARD: How much water is it? I don't have an estimate of the volume of contaminated water. I just don't have that at my fingers right now. We can estimate that and get it for you.

MS. PETERS: Mondell.

MR. WILLIAMS: Yes, ma'am.

MS. PETERS: It's five minutes to 9:00.

MS. SHORTER: No where the aquifer ---

MR. BALLARD: What is an aquifer?

MS. SHORTER: No, I didn't ask you what it was because we did the SWEEP program. I know what an aquifer is, but when it becomes saturated, where does the contamination go?

MR. BALLARD: It's dissolved. The aquifer is the saturated zone of soil.

MS. SHORTER: Okay, so where ---

MR. BALLARD: Contamination migrates from where it's disposed of on Dunn Field through the unsaturated soil until it hits the saturated zone, which is the aquifer, and it slowly dissolves into the water. It's carried with the groundwater. It's dissolved just not unlike sugar dissolving in water. These -- not that I'm comparing these contaminants to sugar by any means, but it's just a process of one compound mixing with another.

MS. SHORTER: But what I'm saying, if there is -- if the ground becomes saturated, couldn't it just be just flowing all through the community?

MR. BALLARD: That wouldn't occur in this case because the top of the water table is 80 feet below the ground surface, and water -- you're not going to get saturation that's going to result in an 80-foot rise in that water table. Historically, we have seen maybe a five to seven-foot fluctuation in that water table. So it's from 75 to 80 -- say, 75 to 85 feet up and down, but never more than that.

MS. CHAPMAN: So, where is the drinking water level?

MR. BALLARD: Well, the drinking water aquifer is in the -- it's about 150 to 200 feet below the shallow aquifer, and there's a clay layer between the shallow aquifer and the deeper aquifer that prevents it from just continuing to flow down there.

MR. SEAL: Excuse me. I have a question. My name is Pete Seal, advertising consultant. I need to ask a question in regards -- I heard you say something in regards to the treatment you're talking about using has been used somewhere else. Do you have information about the results of where it's been used and what it was treated for and what side affects it had after that?

MR. BALLARD: Yes.

MR. SEAL: You have that? Also you said something in regards to the business that was supplying your iron. If by any chance you had a shortage and that vendor could not supply the iron needed, what other sources do you have to be able to supply the same amount of iron needed? And is the iron being tested for the same amount of quantity, whether it's being government regulated 100 percent iron or 85 percent iron and 20 percent alloy?

MS> SHORTER: Good question.

MR. NELSON: There are other vendors for iron. Although, this Japanese corporation specializes in very high quality zero-valent iron, iron that comes in -- it's actually specially processed. So they put it in a bag and do oxygenation on the rusting in the iron before it arrives on the site.

However, during the Treatability Study, and I'm sure during the rest of the implementation, it is sampled on site and sent to a laboratory to test the

contents of the iron. In other words, is there any other materials in the iron, any other site contaminants, anything related to the site as well as for the purity of that iron, and then we receive the data to check against the actual manufacturer's testing. They also test it before it comes out to the site. So there is actually confirmation twice as to the purity of the iron. Did you have anymore?

MS. SHORTER: So you're going to have a certificate of analysis for each batch of iron. That's what you're saying; right?

MR. NELSON: Yes, but that's after the fact.

MS. SHORTER: Yeah, but, you know, I -- because I've worked in the lab. I know what you're trying to say.

MR. NELSON: The vender supplies a purity analysis.

MS. SHORTER: But like he said, what happens if for some reason we can't get it from Japan?

MR. NELSON: Well, there are vendors -- there are other vendors in the United States that use this quality iron.

MS. SHORTER: So why are we going to Japan in the first place?

MR. NELSON: Well, it's all price difference between, you know, the types of iron.

MS. SHORTER: But you know 911 sort of limited, you know, Trans Continental -- Trans ---

MR. NELSON: Well, it's a Japanese owned firm that can manufacture here in the United States.

MS. SHORTER: Oh, okay. All right, now you're making it clear to us. Just Japan is going to get it anyhow.

MR. NELSON: They have a technique that produces the iron.

MR. WILLIAMS: Okay, are there anymore comments from the public? Okay, if not, I really appreciate all the comments that I have received tonight. And all of them will be taken into consideration, and, hopefully, if any questions came out that we will have to address any answers to, we will try to do that in our next meeting when we have it. It will be written out, the answers to the subject question that was asked in the meeting.

And I'm sorry that I did not make note of that. When we start our meetings, there shouldn't be any cell phones ringing, any beepers going off and things like that. We take this meeting very serious, as the community takes it about the problem that they are having, and that's no disrespect to anyone, but we try to respect what is going on in the meeting.

And I would like to ask the RAB to waive the RAB Comment Period so we might be able to leave the meeting.

MR. TYLER: So moved.

MR. WILLIAMS: So there is a first. Is there a second?

MS. BROOKS: Second.

MR. WILLIAMS: All in favor?

THE BOARD: Aye.

MR. WILLIAMS: Any opposed? (Brief pause.)

MR. WILLIAMS: Any abstained? (Brief pause.)

MR. WILLIAMS: Okay.

MR. TYLER: Thank the public for coming.

MR. WILLIAMS: So, I would like for someone to make a motion on adjourning the meeting.

MS. PETERS: I make a motion that we adjourn.

MR. TYLER: Second.

MR. WILLIAMS: Okay, all in favor?

THE BOARD: Aye.

MR. WILLIAMS: Any opposed? (Brief pause.)

MR. WILLIAMS: So moved.

(Whereupon, at approximately 9:00 p.m. the meeting was adjourned.)

NEXT MEETING:

Attendance List
Restoration Advisory Board Members

Mr. Mondell Williams	Community Co-Chair
Mr. Michael Dobbs	Interim Facility Co-Chair
Mr. Turpin Ballard	Environmental Protection Agency (EPA)
Mr. Jim Morrison	Tennessee Department of Environment and Conservation (TDEC)
Mr. Reginald Eskridge	Citizen Representative
Ms. Johnnie Mae Peters	Citizen Representative
Mr. Eugene Brayon	Citizen Representative
Mr. Stanley Tyler	Citizen Representative
Mr. Jim Covington	Memphis Depot Redevelopment Corporation (DRC)
Ms. Doris Bradshaw	Environmental Representative (DDMT-CCC)
Ms. Peggy Brooks	Citizen Representative
Mr. Torrence Myers	Memphis Light, Gas and Water (MLGW)
Mr. Norm LaChapelle	Memphis/Shelby County Health Department

Others in Attendance

Mr. Pete Seale	Citizen
Ms. Gwendolyn Gilbert Shorter	Citizen
Ms. Liz Daggett	Citizen
Ms. Vernestine Dockery	Citizen
Mr. Kellon Earl	Citizen
Ms. Judy Chatman	Citizen
Ms. Janice Smith	Citizen
Ms. C. Powers	Citizen
Mr. P. Sidney	Citizen
Mr. David Nelson	CH2M Hill
Mr. Tom Charlier	The Commercial Appeal
Mr. Mike Dobbs	Defense Logistics Agency
Mr. Benjamin Moore	Agency for Toxic Substances and Disease Registry
Ms. Tiki Whitfield	Environmental Protection Agency
Mr. David Nelson	CH2M Hill
Mr. Jesse Perez	Air Force Center for Environmental Excellence
Ms. Alma Black Moore	Frontline Communications
Mr. Trevor Smith Diggins	Frontline Communications
Ms. Keren Adderley	Frontline Communications
Mr. Tom Holmes	MACTEC Engineering
Ms. Angela McMath	MACTEC Engineering